Meeting Minutes

Chuck Keene, DWR, welcomed the group, and each attendee provided their name and affiliation. He outlined the desired outcomes of the meeting, which included the following:

1) Review and finalize the Baseline Air Monitoring Network Plan and equipment recommendations.

At this time, the goal is to fast track the equipment procurement, to occur before the end of the fiscal year. To do this, we need to procure bids by April 15, 2008, and commit purchases by May 15, 2008. We could then plan to install equipment by Fall 2008. Discussions have been held with IID regarding logistics, e.g., potential sites, electricity, site access, site preparation, fencing. (Update – After the SSAQTWG meeting, an internal memo was issued by DWR that set a major equipment procurement deadline for mid-March. Unfortunately, this deadline made it impossible for air quality monitoring equipment to be purchased this fiscal year. Therefore, the procurement of this equipment has been postponed until next Fall, at the earliest, providing more time to evaluate the monitoring plan and equipment specifications before advertising for bids. A new schedule for implementation of the air quality monitoring plan will be discussed at the next SSAQTWG meeting.)

2) Discuss the Monitoring and Assessment Program (MAP) Air Quality sections.

3) Review the DRI Proposal, discuss the Scripps Proposal, and other potential proposals of interest for air quality (e.g., remote sensing, Pat Chavez).

Chuck discussed SB 1256, the new bill which would designate a governance structure for the project, the Salton Sea Restoration Council, with 14 voting members. The bill would approve the Preferred Alternative and authorize work on the Five Year Plan.

Pat Cooper explained that SB 187, related to funding, was held up last year in the Assembly Appropriations Committee, due to lack of a defined governance structure. This 2-year bill is still moving forward. The Senate Bills introduced by Senator Ducheny regarding the Salton Sea restoration program are available on the California legislature web site at:
http://www.legislature.ca.gov/cgi-bin/port-postquery?bill_number=sb_1256&sess=CUR&house=B&author=ducheny
and
http://www.legislature.ca.gov/cgi-bin/port-postquery?bill_number=sb_187&sess=CUR&house=B&author=ducheny.

In addition to the bills, the Legislative Analyst's Office (LAO) has prepared a report titled, "Restoring the Salton Sea". The January 2008 report is available on the LAO website at http://192.234.213.2/laoapp/PubDetails.aspx?id=1700. Protection of air quality is one of the top priorities listed.

Mike Walker mentioned that the final report from the US Bureau of Reclamation on Restoration of the Salton Sea, December 2007, is available on the Reclamation web site at: http://www.usbr.gov/lc/region/saltnsea/finalreport/index.html.

Chuck briefly discussed the Monitoring and Assessment Program (MAP) effort, which is being led by the USGS and supported by the Focused Technical Groups.

Air Quality Monitoring Network Plan

Earl Withycombe gave a presentation on the Baseline Salton Sea Air Quality Monitoring Network Plan. In addition to a general discussion of the baseline monitoring plan, he presented handouts on the ARB's recommendations for PM monitoring and a site equipment list. A map shown in the previous SSAQTWG meeting, which presented the proposed locations, was also displayed on the overhead screen during Earl's presentation.

The primary goal for this initial monitoring network is to characterize baseline air quality over the next 5 years. Under a restoration scenario, increased emissions are expected due to construction (exhaust emissions and dust) and exposure and/or disturbance of lakebed/playa (dust). It is expected that dust emissions would be primarily comprised of coarse PM, (particles greater than 2.5 microns in aerodynamic diameter). The Salton Sea Air Basin is classified as non-attainment for PM10, but has not been classified for PM2.5 (particles less than or equal to 2.5 microns in aerodynamic diameter). Phil Fine of SCAQMD indicated that monitoring data for Coachella Valley have indicated air quality improvements, and SCAQMD has applied to EPA for re-designation to PM10 attainment status.

There are no definitive chemical signatures available to differentiate current PM sources from future project-related sources. More information may be obtained later, through sediment and salt studies, but for now a distinction cannot be made.

Earl explained that the predominant existing sources of PM in the Salton Sea Air Basin are unpaved and paved roads, agricultural activity, and wind blown dust from vacant lands. Anecdotal evidence indicates hot spots with high potential for PM10 emissions, e.g., off road vehicle recreational areas near the gypsum mine east of the Salton Sea. In addition, there are episodic wind events, which may be of short to medium duration. One goal of the monitoring is to measure PM over averaging times less than one-hour, perhaps at averaging times as short as 5-minutes. There are two major types of continuous PM monitoring instrumentation: tapered element oscillating microbalances (TEOMs) and beta attenuation monitors (BAMs). Earl has had discussions with vendors, users, agencies, and performed a literature review to determine the best instrumentation for this project. His research indicated that BAMs may be preferred in urban areas, and they appear to be better for capture of volatile materials. TEOMs are preferred in desert environs, and they may provide better capability for shorter averaging periods (5 to 10 minutes).

Earl's recommendations were provided in handouts to the meeting attendees, titled *Salton Sea Baseline Air Quality Monitoring, Recommendations for PM Monitoring*, with a table, titled *Salton Sea Monitoring Sites Equipment List*. In summary, the recommendations included the following:

1) Dichotomous TEOMS for continuous measurements of coarse PM and PM2.5 simultaneously (using 5 to 10 minute averaging periods) at every site.

2) Filter-based Partisol samplers for simultaneous collection of coarse PM and PM2.5 on 47-mm filters for subsequent speciation analysis at every site (with speciation and elemental analysis on a schedule of 1 sample per 6 days, or during high wind events).

3) BAMs at 2 sites (North and South) for continuous monitoring of either PM10 or PM2.5 (with one-hour averaging periods), and to provide correlations with TEOM data.

4) Portable E-BAMs for continuous monitoring of either PM10 or PM2.5 (with 4-minute averaging periods), for research purposes. The plan is to operate the portable E-BAMs side by side with other equipment to allow development of correlations.

5) Monitors for ozone, NOx, and CO at a south shore site, with potential to rotate equipment locations each year.

6) Monitors for ammonia (NH_3), hydrogen sulfide (H_2S), sulfur oxides (SOx), especially to monitor during Salton Sea turnover events. Monitors to be located in the North and South, with potential to rotate monitoring sites in the South.

7) Meteorological towers and measurement equipment at each monitoring site.

Earl described comments that have come in on the current version of plan:

1) Locate an additional monitoring site on the North Shore

2) Perform particle deposition monitoring

3) Evaluate/monitor sand motion and effects on exposed playa

As planned, the baseline monitoring program will last for 5 years, beginning in late 2008 or early 2009.

Pat Cooper asked what PM monitoring equipment is used at Owens Lake. Earl responded that they have tested E-BAMs and BAMs, but they use TEOMs for PM10, operating without the FDMS (Flow Dynamic Measurement System) required for EPA certification. Earl is proposing the same setup for the Salton Sea, TEOMs without the FDMS. The TEOM with the FDMS is an EPA equivalent method, and the data may be used by EPA to designate areas as attainment or non-attainment for the National Ambient Air Quality Standards (NAAQS). Earl responded to a question from Reyes regarding equipment certification as Federal Reference Method (FRM), and indicated that when construction commences, the FDMS may be added so that the data can be used for regulatory purposes.

Chuck stated that the DWR budget is approximately $1M for purchasing the equipment to support the baseline AQ monitoring program. Baseline monitoring may transition into long term monitoring, in the future. Construction projects will also include air quality

monitoring, but construction will likely be monitored using additional equipment, to supplement the baseline system.

The air agencies discussed what systems and software would be used for data acquisition (logging), data transmission (e.g., telemetry), data screening, and data storage and management. Phil Fine also asked who/what agency will be tasked with data management and interpretation. Earl responded that this equipment would be designed to be consistent with what ICAPCD has at existing sites. Currently, ICAPCD is operating with ESC (Environmental Systems Corporation) data loggers and EDAS (Ethernet Data Acquisition Systems) software. Assignments for responsibility for data management and interpretation are still being discussed.

Regarding data communication, Phil Fine indicated that data lines are desirable, but satellite systems are a possibility. IID also offered their radio system may be an option, if it has the capacity.

Earl discussed the meteorological parameters to be measured, including the 10 meter meteorological towers. He also stated that the modeling folks at ARB want to use the CALPUFF model, which requires data from a 3-dimensional sonic anemometer (wind speed monitor). He would like to include this type of anemometer in the system design.

Keith McGregor raised a question regarding the monitors for gaseous pollutants (ammonia, H_2S, ozone, NOx, SO_2). The plan calls for rotating the instruments, or the monitoring trailers, at 1 year increments. Keith asked if there is a need for a control group of monitors that would remain in one location throughout the baseline monitoring period. If there is variability in the data, data from a control group of monitors could be used to determine if this variability is due to location or time.

Chuck requested that the group submit any comments on the ARB's Air Monitoring Network Plan by mid-March.

Monitoring and Assessment Plan (MAP)

Lee Case discussed the overall Salton Sea Science Program and the Monitoring and Assessment Plan, or MAP.

The goal of the MAP is to implement a system for data collection, analysis, management, and reporting to inform and guide management actions for the Salton Sea ecosystem. The MAP is part of the overall Science Plan, but its focus is on monitoring and assessment, not research and focused studies. Focused technical working groups (FTGs) have been established for each technical area (Air Quality, Biology, Socioeconomic, Hydrologic, Geology/Geographic, and Data Management). Each FTG is using the Data Quality Objective (DQO) process to identify Problem Statements, Goals, Objectives, Key Questions, Constraints and Assumptions, and Approaches. An important part of this process is integration of the monitoring that is undertaken, for example, to make sure that air quality is integrated with the work done and data needed for the other groups.

Baseline is a controversial term, and perhaps "current conditions" is a better term. John Scott emphasized the need to measure now and not to wait for the MAP to be developed.

Doug Barnum presented the draft Conceptual Models being developed for each technical area. The conceptual models are being developed to illustrate linkages between processes and constituents to be monitored. The goal again is integration. Duplication of efforts has been a failing of large restoration projects in the past.

Air Quality Sections of the MAP

Pamela gave a presentation on the Air Quality sections being drafted for the MAP. The electronic files for the draft sections will be distributed to the group for review and comment. The major sections are:

- Problem Statement
- Goal
- Objectives
- Constraints/Assumptions
- Key Questions
- Approach
- Conceptual Model

There is some flexibility in how the Air Quality sections are designed and worded, but they need to align with the format and content of the MAP sections for the other FTGs.

Chuck requested that comments on the draft MAP be submitted to Pamela and him by mid-March.

Reyes Romero asked if Earl's proposed baseline air quality monitoring program will answer all the questions in the MAP. If not, he suggested that the plan be revised to answer these questions. Pamela explained that the ARB plan isn't meant to answer all the MAP questions. Earl's plan is meant to cover monitoring for baseline or current air quality conditions, and the MAP list of key questions is meant to capture the key air quality questions over the lifetime of the restoration project, including project level environmental studies. Chuck agreed that not all questions will be answered by the baseline monitoring; some questions will need to be answered by long term monitoring or other studies. He also said that the MAP is a living document, and it needs to include a change management process, and describe the transition of monitoring from baseline to long term or project-level studies. Pamela agreed that Reyes' question provides a good check to see if Earl's plan is sufficient to answer key questions regarding baseline or current air quality conditions. Phil Fine said that part of the DQO process is to revisit these questions on a regular basis.

Michael Cohen asked if we would add a key question regarding the potential impacts of climate change on future air quality in the Salton Sea Air Basin.

Phil Fine asked who (what agency) would be tasked with analysis of the data from the baseline monitoring program. Earl responded that ICAPCD and Torres-Martinez would perform an initial review of batched data to identify and flag bad data, and that ARB

would process the data through QC software and manual methods before loading the data onto ARB's QC'ed data website. Real time data uploaded every hour to ARB's current air quality website would be reviewed only by the screening QC software developed and used by ARB. Jonathan Chapman indicated that their technician would merely send raw data, and that the Tribe would assume that the air quality agencies would do the quality assurance. Earl answered that ARB is interested and they have offered to store the data and make it available on their website, for the 1-hour and longer averaging period data. Phil asked who will do data review, instrument comparisons, etc. Again, assignments for responsibility for data analysis, review, and interpretation are still being finalized.

An "Approach Document" needs to be prepared to outline Earl's reasoning for the proposed approach for the baseline air quality monitoring program.

Phil Fine suggested that the MAP document might have the following sections:

1) Baseline Monitoring,

2) Special Studies,

3) Data Management, and

4) Project Integration.

Chuck requested that any feedback from the group be sent to Earl regarding the proposed suggestion of another baseline monitoring station at the northeast end of the Salton Sea. Phil suggested that if budget allows, maybe it would be better to purchase a spare set of instruments now. We could replace any equipment that goes down, so we wouldn't miss any data, and if the need arises for another station, the entire set could be quickly deployed.

DRI Proposal

James King presented DRI's proposal for additional studies of dust emissions potential, salt crust genesis, and aerosol chemistry at the Salton Sea.

The objectives of the proposal are:

- Long term monitoring of recently exposed sediments at the Salton Sea, to develop information on the sediment and how it changes over time, and how this affects emissivity.
- Develop information on changes in soil properties under various conditions for use in dust estimation and mitigation studies.

James explained the proposed field methodology and lab analyses.

John Scott asked if groundwater level would be measured as part of the study. He feels that this would be useful and necessary information. Discussion continued on the difficulties associated with collecting the groundwater level measurements. Lee Case mentioned LIDAR.

James outlined the particle characterization, sample collection, site selection, and sampling protocols.

A general discussion followed on the long term purpose of DRI's research. There was concern that the PI SWERL could be used as a predictive or compliance tool, when it is really meant to be a research tool. Perhaps the PI SWERL could be used to determine if the restoration project would create an emissive situation. A reasonable goal is to determine an empirical relationship between soil/soil characteristics and emissivity.

John Scott asked if Cox Sand Catchers will be used to measure sand movement. Chuck said no, that is not the plan for now. DRI has shown that sand movement is not much of an issue at the Salton Sea at this time, because there are not large exposed areas with sand present.

Scripps/USGS Proposal

Lee Case briefly described the Scripps/USGS proposal. Work is scheduled to begin at the Salton Sea on May 1, 2008 (Phase I). Components of Scripps/USGS proposal include:

- Geohazards
- Geophysics
- Bathymetry

Mike commented that some of this work has been done before and questioned what would be gained with this latest proposal. Lee stated that the bathymetry is higher resolution, and will get into areas that haven't been explored before. The proposal is currently being reworked. Lee suggested that someone else (Neal Driscoll or Graham Kent) present more details on the proposal at our next meeting.

Chuck pointed out that Pat Chavez is involved in the air quality aspects of the Scripps proposal, and also said they plan to have Pat Chavez prepare a proposal for remote sensing at the Salton Sea. Lee stated that this is also important to the Geography/Geology groups.

Path Forward, Next Steps

Vic Etyemezian asked if there was a repository for all the data. Chuck said that all the documents prepared to date are available on the DWR FTP Site. Standard air quality monitoring data will be housed on ARB web sites, as described previously by Earl, but there may be a need for additional data management for air quality data from shorter averaging periods. Mike asked if there is a data repository group. Chuck said that the data management group needs to address where the research library will reside.

Chuck asked if there were additional comments or questions regarding the information presented. Brad responded for ICAPCD saying that ARB had included the gaseous monitoring they'd requested, in response to one of their concerns. He also mentioned sand catchers and climate change. He asked if other proposals (beyond DRI, USGS/Scripps) were being considered, because they had heard of other parties interested in proposing work at the Salton Sea, e.g., Agrarian. Chuck responded that first the Restoration Team will finalize the Five Year Plan, then look at proposals and see how they fit into the Five Year Plan.

As one of the next steps for the baseline air monitoring program, CH2M HILL will meet with IID to evaluate potential sites and availability of power at the proposed locations. Jonathon Chapman asked if a representative of the Torres Martinez Tribe could participate in the site visits to identify potential locations for the monitoring stations. Chuck said yes, the scouting mission would likely be held in March. Brad asked if power is available at the proposed locations. Jonathon said there was power at the Salton Sea Test Site (single phase), but that the wetlands site in the North needs power.

At the conclusion of the meeting, Chuck requested that participants complete 3 tasks by March 15:

1) Provide comments on Earl's Network Plan and Equipment Lists, including comments on the need for a proposed monitor station at the northeast end of the Salton Sea,

2) Review DRI's proposal and provide comments, and

3) Review the draft air quality sections for the MAP and submit comments to Pamela. Be prepared to finalize the Problem Statement, Goals, Objectives, and Constraints/Assumptions by the next SSAQTWG meeting.

Chuck concluded the meeting with a list of potential topics for the next SSAQTWG Meeting, which will likely be held in early May, 2008. Potential topics include:

1) The MAP program and the air quality sections for the MAP

2) A presentation from Pat Chavez on the AQ Components of the Scripps Proposal and his proposal for remote sensing at the Salton Sea

3) An update on the DRI Proposal

4) An update on the Salton Sea-related legislation

5) The procurement process for the air quality monitoring equipment, and siting of the monitoring stations

6) John Dickey's concepts for potential proposals from IID to conduct pilot studies of control methods for emissive playa and tools for monitoring and mapping of potential source areas (sand motion monitoring and surface mapping)

7) Five Year Plan Development

Mike Cohen asked what long-term mitigation methods are being considered. Chuck responded that the Five Year Plan may include pilot studies of dust mitigation and control measures.